



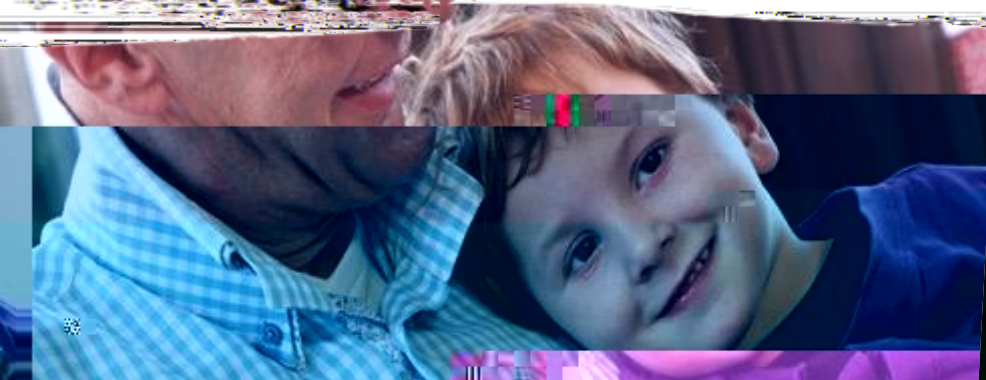
**FOOD
SAFETY**

ANTICIPATE
PREVENT
& MANAGE

Food allergen analysis, challenges and new trends

WEI ZHU, PH.D.

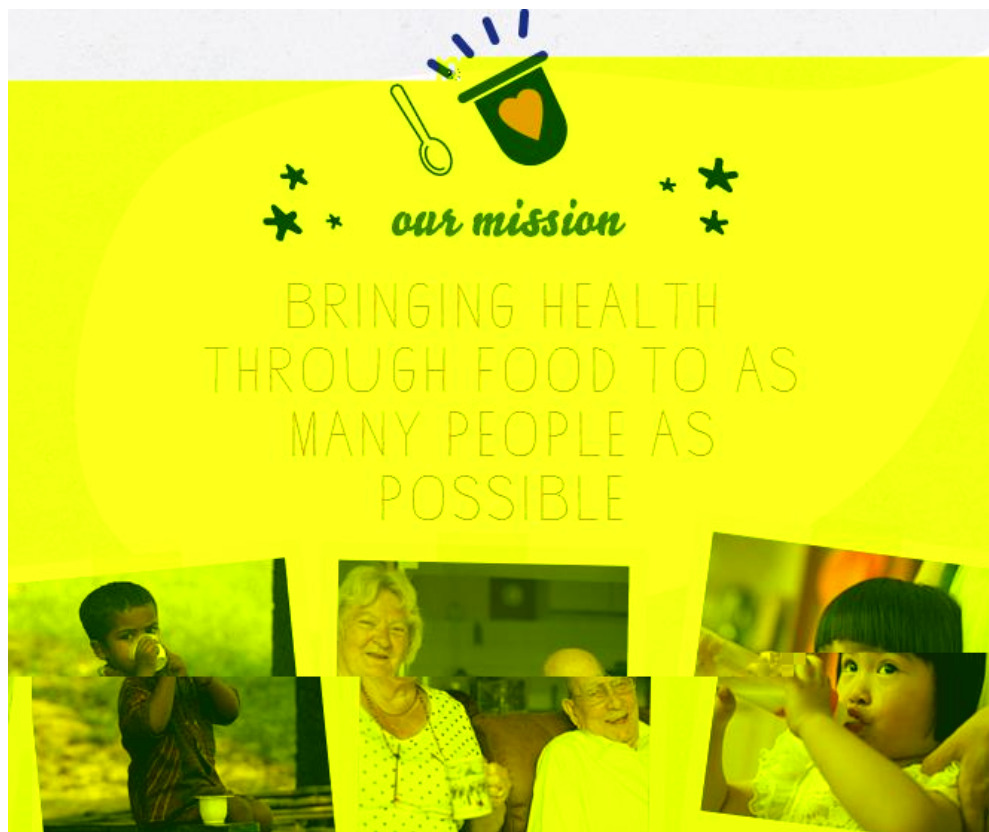
DANONE GREATER CHINA FOOD SAFETY LAB DIRECTOR
27 DECEMBER, 2017



CONTENT

- 1 Introduction of Danone food safety and quality
- 2 Food allergen management
- 3 Detection and quantification of allergen traces in food products and challenge
- 4 New trends in the quantitation of food allergen

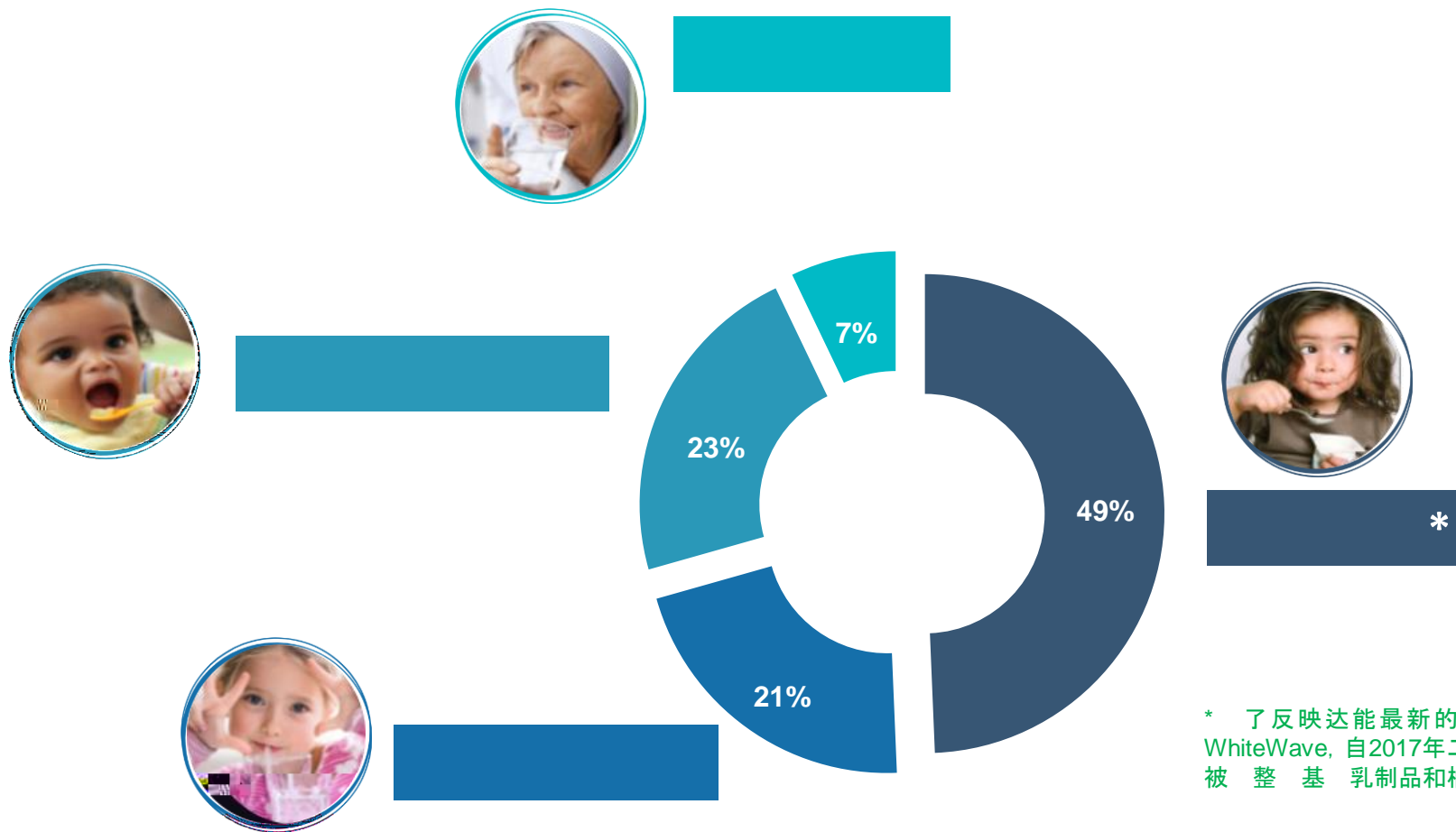
A UNIQUE MISSION AND DUAL ECONOMIC AND SOCIAL PROJECT



Our dual economic and social project



OUR FOUR BUSINESS ACTIVITIES



* 了反映达能最新的 展情况, 包括整合 WhiteWave, 自2017年二季度起 乳制品 被 整 基 乳制品和植物基 品

FOOD SAFETY & QUALITY: A COMMON MISSION, CLEAR ACCOUNTABILITIES

“BRINGING HEALTH
THROUGH FOOD TO AS
MANY PEOPLE AS
POSSIBLE”



FOOD SAFETY
scientific

5

The **complementarity** of two fields
ensuring **uniqueness** and
key to achieve **mission**



QUALITY
consumer

ALLERGEN AND ALLERGY

Allergen

ALLERGENIC FOODS

The Big-8

 Milk	 Eggs	 Fish	 Crustacean Shellfish
 Tree Nuts	 Peanuts	 Wheat	 Soya

Other Priority Allergens

 Buckwheat	 Celery	 Lupine
 Molluscan Shellfish	 Mustard	 Sesame

FOOD ALLERGEN MANAGEMENT

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FOOD ALLERGEN MANAGEMENT



Regulation on implementation of food safety law (draft)

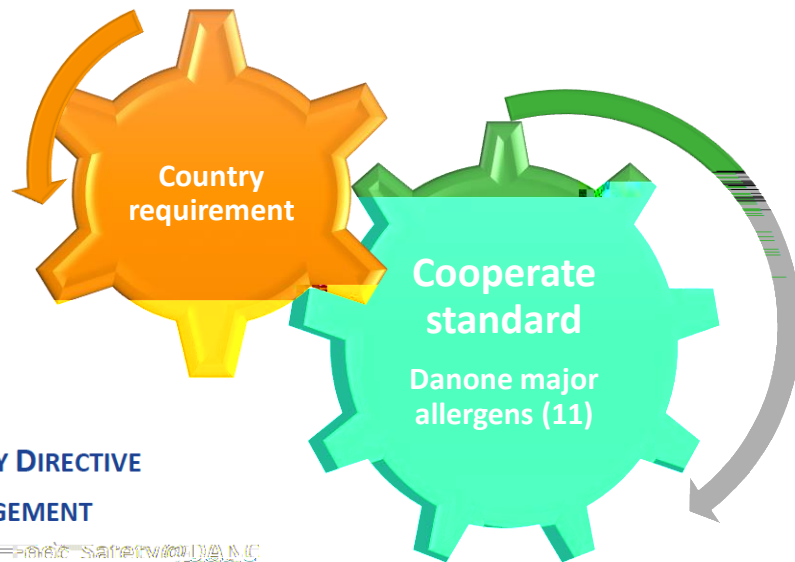
FOOD ALLERGEN MANAGEMENT

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FOOD ALLERGEN MANAGEMENT

TO ENSURE THAT DANONE CREATES, MANUFACTURES AND DELIVERS ITS PRODUCTS EVERYDAY WITH NO COMPROMISE ON FOOD SAFETY BY STRICTLY FOLLOWING THE DANONE COMPLIANCE POLICY AND ANTICIPATING EMERGING RISKS



**DANONE FOOD SAFETY DIRECTIVE
ALLERGEN MANAGEMENT**

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ANALYTICAL TECHNIC – CONTROL CHECK FOR FOOD ALLERGEN

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“Free from...”

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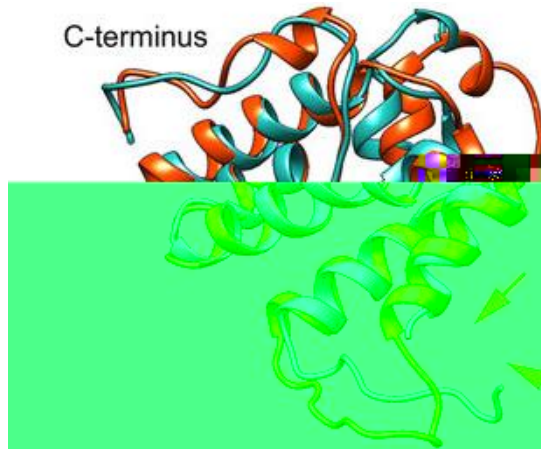
FOOD ALLERGEN ANALYSIS

Q Q

Q Q

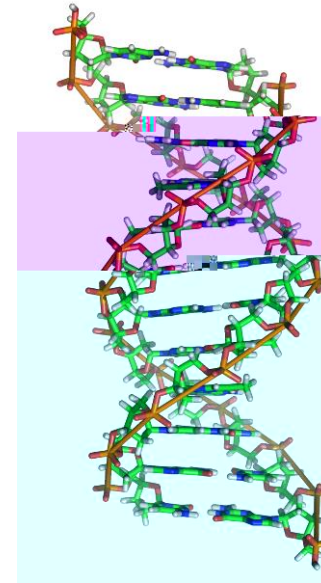
E Q

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Alpha-lactalbumin

α -



FOOD ALLERGEN TESTING TECHNIQUES

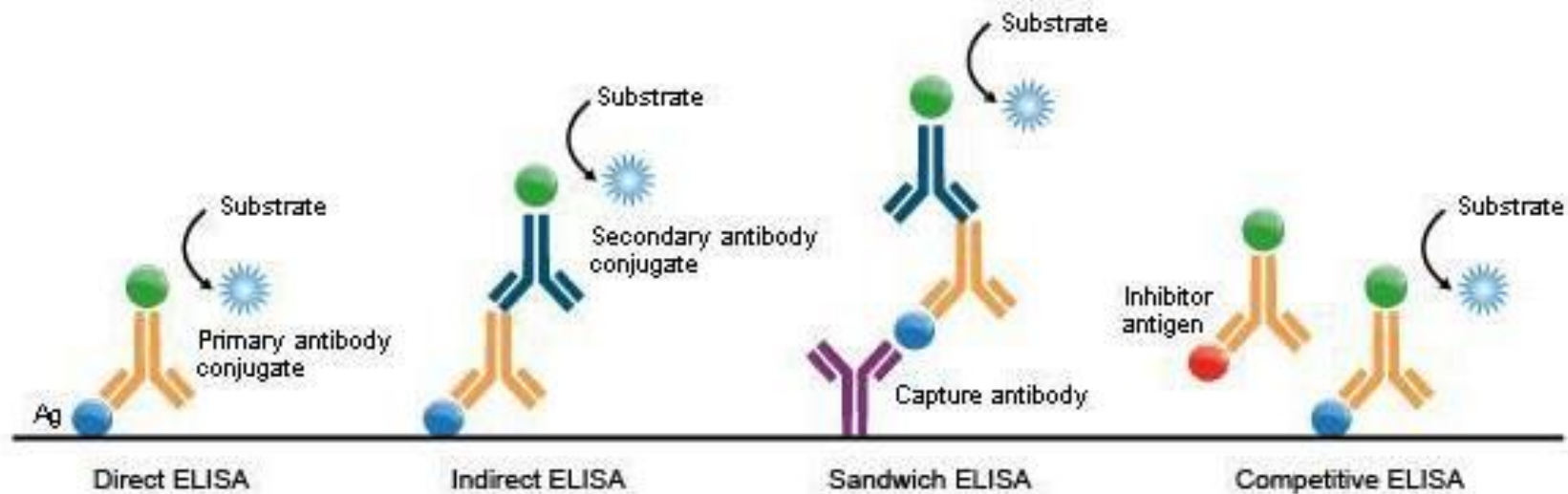
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antibodies

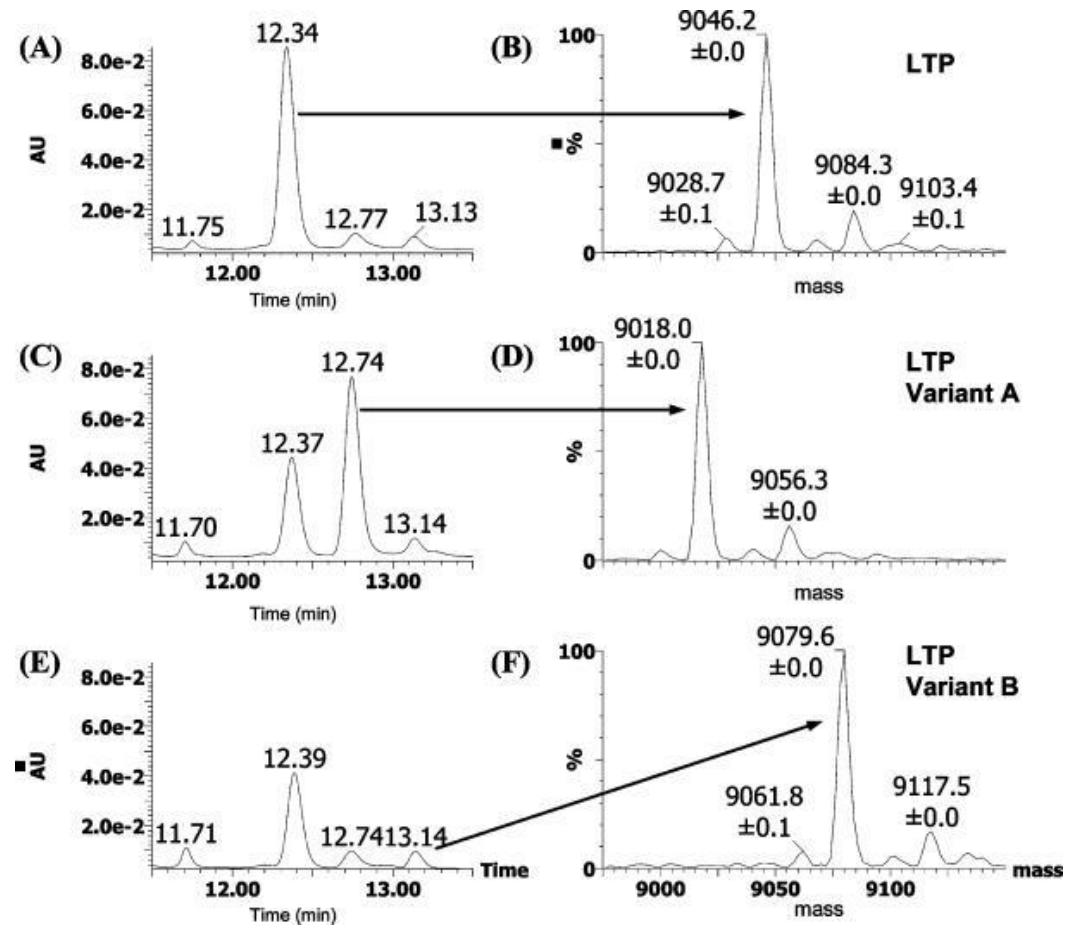
antigen



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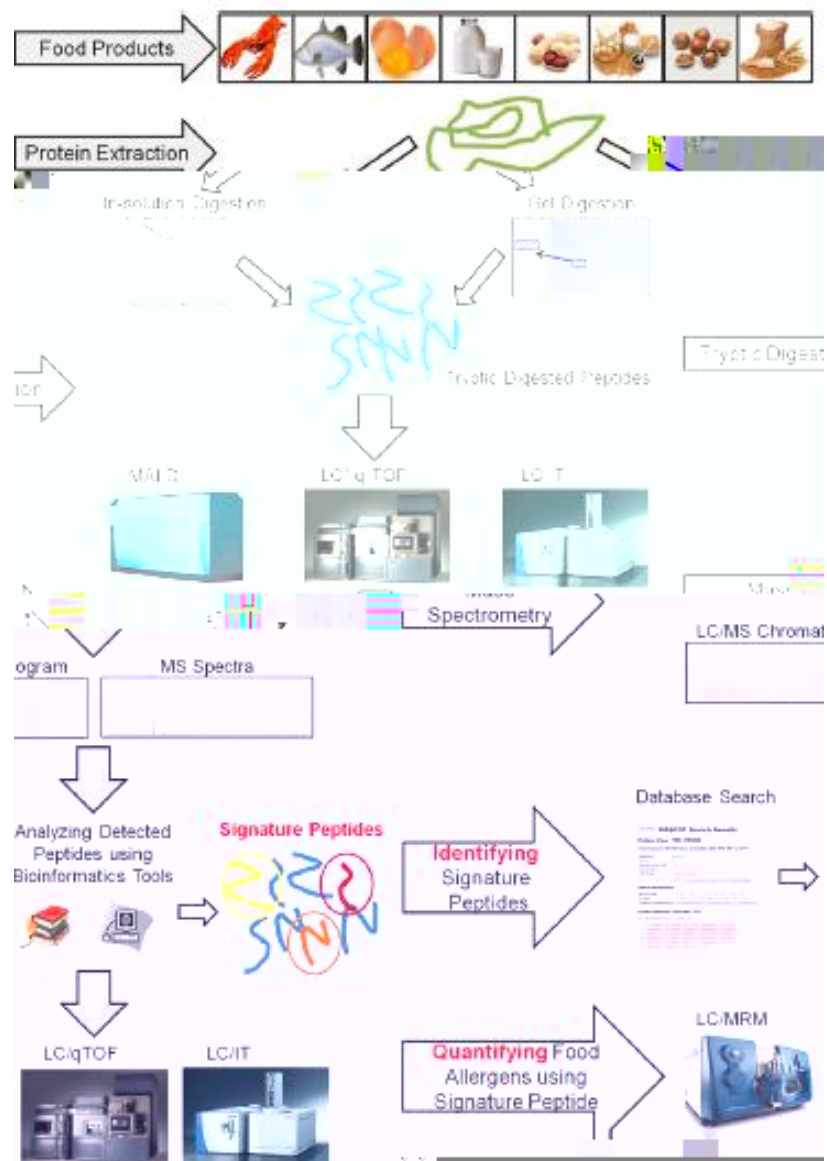
FOOD ALLERGEN ANALYSIS

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FOOD ALLERGEN ANALYSIS

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*Martina Koeberl, Dean Clarke, and
 Andreas L. Lopata. J. Proteome
 Res. 2014.*

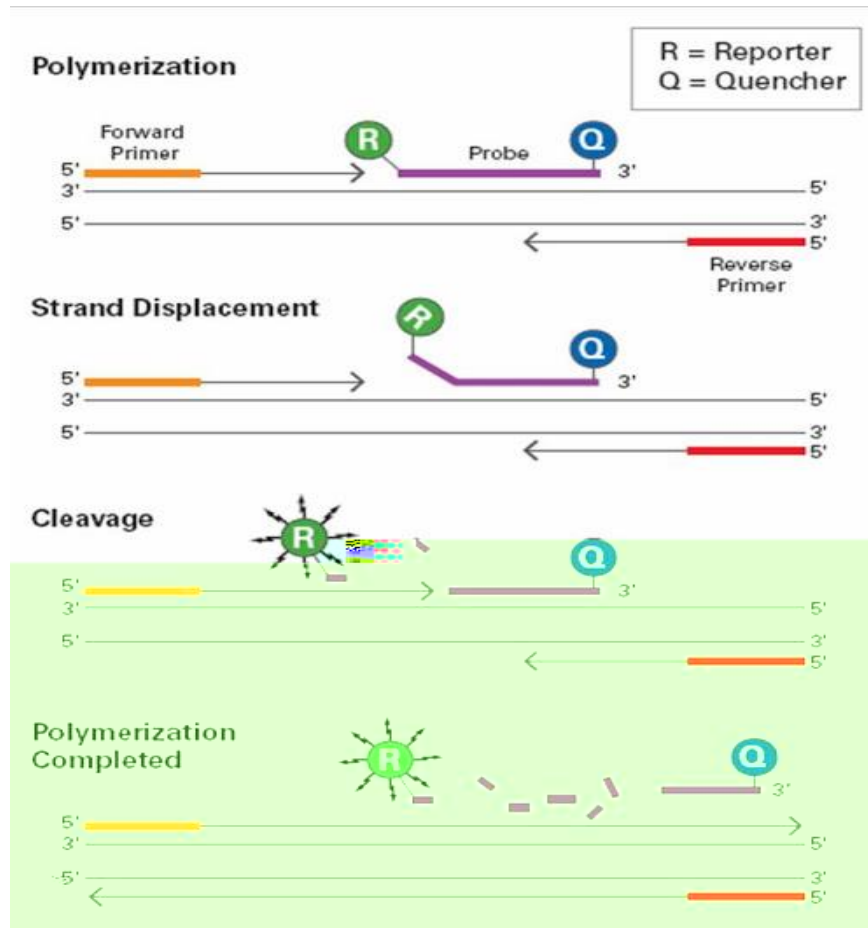
COMPARISON BETWEEN IMMUNOLOGICAL AND CHEMICAL METHOD FOR ALLERGEN ANALYSIS

Comparison between immunological and chemical methods

	MS based			Antibody based		
	MALDI	qTOF/IT	MRM	ELISA	Immunoassay	Immunoassay
matrix containing allergen	Weak buffers	Weak buffers	Weak buffers	Extraction Buffer	Strong detergents	da
Strong targets	Yes	Yes	Yes	Treatment	No	
No	No	No	No	Detection Method	Spectrometry	
MS/MS	Multiple	Multiple	Multiple	Allergens can be analysed	Yes	
Cost	No	Yes/No	Yes	Standard required	Yes (internal kit standard)	
No	No	No	No	Cross reactivity	Yes	
Yes	Yes	Yes	Yes	Species	Yes	
No	No	No	No	Species	Yes	
Yes	Yes	Yes	Yes	Species	Yes	
Fast analysis	Fast analysis	Fast analysis	Fast analysis	Fast analysis	Fast analysis	
Low	Low	Medium	Medium	Medium	Medium	
LOD (lowest 0.2ppm)	Semi quantitative	Semi quantitative	0.05ppm	LOD (lowest 0.05ppm)	LOD (lowest 0.05ppm)	

Martina Koeberl, Dean Clarke, and Andreas L. Lopata. J. Proteome Res. 2014.

DNA BASED METHOD



PCR

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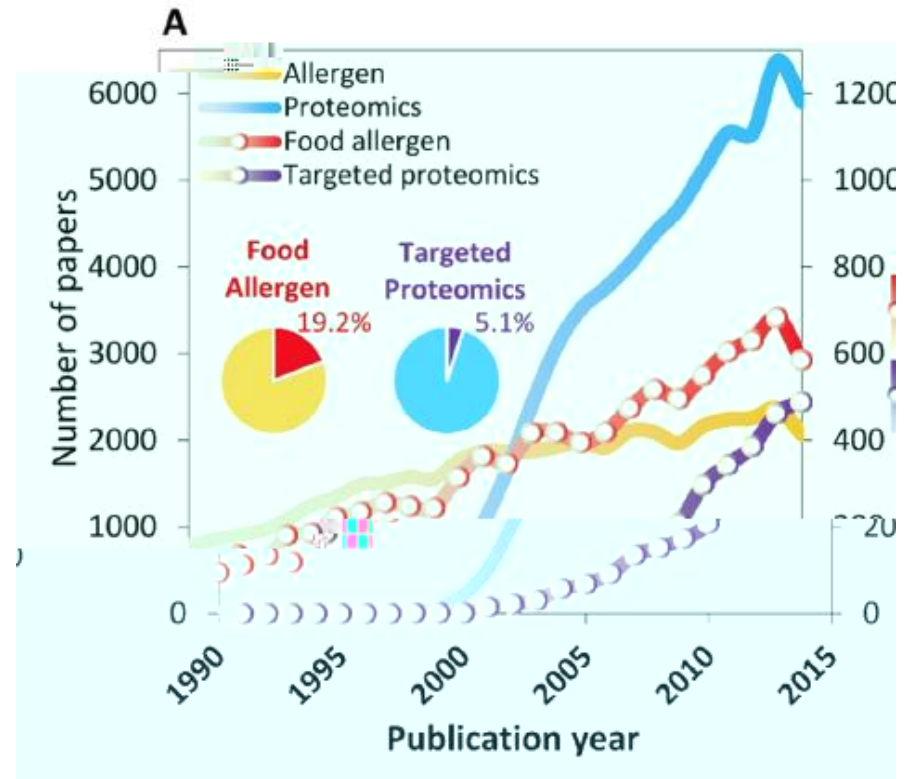
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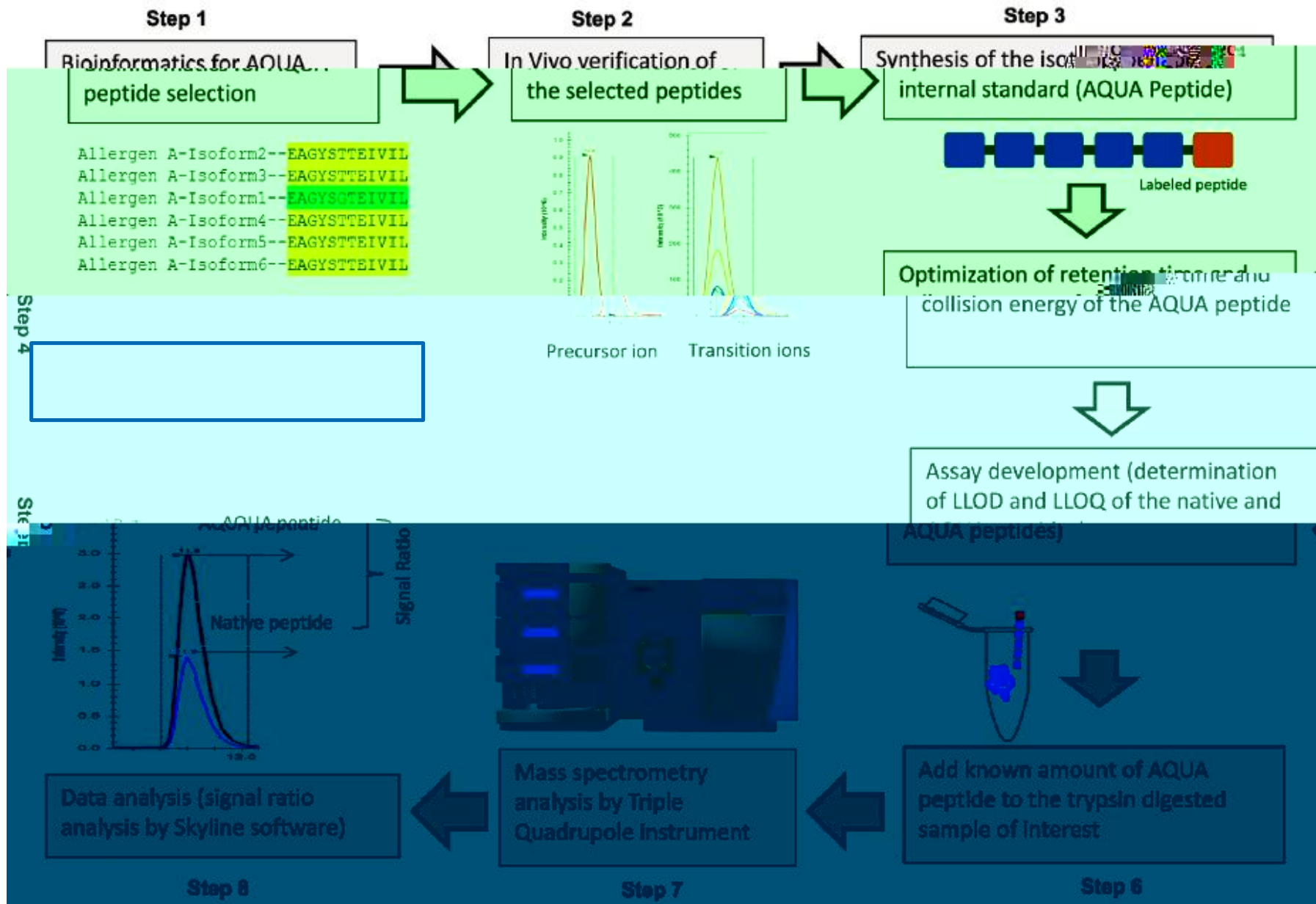
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Nagib Ahsan, et al. Journal of Proteomics. 2016.

Targeted proteomics in quantification of food allergens



谢谢

DANKSCHEEN
 YAQHANYELAY
 TASHAKKUR ATU
 GRACIAS
 SUKSAMA
 EKHMET
 THANK
 BIYAN
 SHUKRIA
 TINGKI

ARIGATO
 SHUKURIA
 GOZAIMASHITA
 EFCHARISTO
 JUSPAXAR
 KOMAPSUNJIDA
 GRAZIE
 MEHRBA
 PALDIES
 YOU
 BOLZIN
 MERCI